

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 57061907  
PUBLICATION DATE : 14-04-82

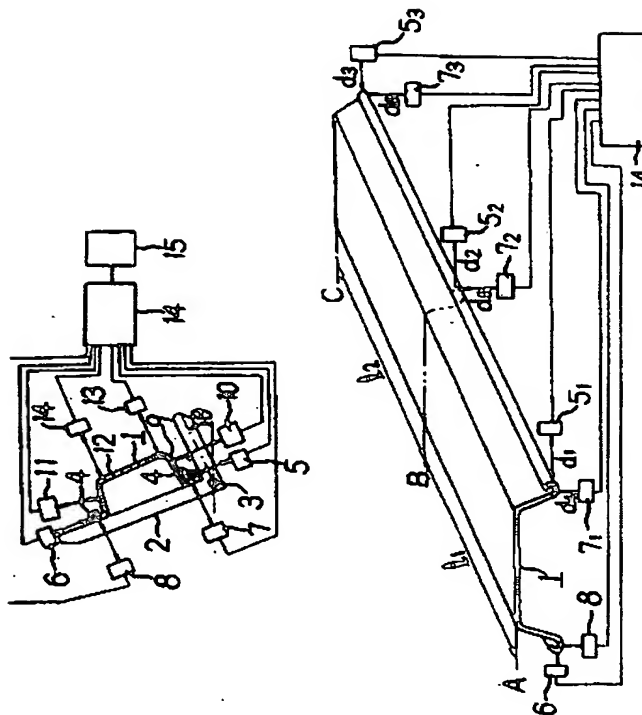
APPLICATION DATE : 01-10-80  
APPLICATION NUMBER : 55135752

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INT.CL. : G01B 21/30 G01B 21/20 G01B 21/20

TITLE : MEASURING METHOD  
STRAIGHTNESS OF SHAPE STEEL  
STOCK



ABSTRACT : PURPOSE: To realize an automatic measurement for the amount of distortion in a short time and with high accuracy, by installing at least three noncontacting measuring heads at three areas in the lengthwise direction of an object to be measured and calculating the value detected by these heads.

CONSTITUTION: An object 1 to be measured is put on a holding member 2, and three points A, B and C are selected with spaces  $l_1$  and  $l_2$  for three sections right-angles to the lengthwise direction of the object 1. Then noncontacting bent measuring heads  $5_1$ ,  $5_2$  and  $5_3$  like laser beams are installed at the three points to be connected to an arithmetic circuit 14. In this constitution, the degree of bend between two points A and C is expressed as  $d_1(d_3-d_1) \cdot l_1 / (l_1 + l_2) - d_2$ , where the distances between the object 1 and each of the three heads are  $d_1$ ,  $d_2$  and  $d_3$  respectively. Then the head output is supplied to the circuit 14 to carry out the above-mentioned arithmetic, and the degree of bend is displayed on a display device 15. For the degree of warp, measuring heads  $7_1 \sim 7_3$  are used. In such way, the extent of each type of distortion can be automatically measured in a short time and with high accuracy.

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